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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/709,728	05/25/2004	Hsiao-An Hsieh	81096756 / FMC 1671 PUS	3727

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EXAMINER	
BANKHEAD, GENE LOUIS	
ART UNIT	PAPER NUMBER
3744	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/16/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/709,728	HSIEH ET AL.	
	Examiner	Art Unit	
	Gene L. Bankhead	3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 January 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12 and 14-20* is/are rejected.

7)☒ Claim(s) *13* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 May 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments, filed 1/25/07, with respect to the rejection(s) of claim(s) 1-12, and 14-20 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Bascobert (US 6430947) and Scoccia (US 5481884).

Claim Rejections - 35 U.S.C. § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-12, 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bascobert (US 6430947) in view of Scoccia (US 5481884)

With regard to claims 1-3, are 6-9 Bascobert (US 6430947) teaches a system capable of assessing a refrigerant charge level in a vehicle air conditioning system (Abstract). Bascobert further teaches the system comprises a first sensor 16 for providing a cooled air temperature signal 45, second and third sensors (42 and 44) for providing an ambient air temperature and ambient humidity level. He further teaches a control module CPU 46 for processing the temperature and humidity values. They fail to teach a compressor cycling signal and a refrigerant level indicator for indicating if a

refrigerant level is in an acceptable range. Scoccia teaches a compressor cycling signal (column 1 lines 20-27), and further teach a refrigerant indicator level for indicating an acceptable level of refrigerant charge in the system. It would have been obvious to modify the processing module of Bascobert with the compressor cycling signal and refrigerant charge indicator of Scoccia to advantageously disengage the compressor clutch when the refrigerant charge level is low in view of the teachings of Scoccia (column 1 lines 22-27).

In regard to claim 4, Bascobert in view of Scoccia teach all limitations of claim 1, however fail to teach the compressor cycling clutch signal is a voltage sensor. Voltage sensors are well known in the art as used with compressor clutch signals (US 6293114, column 6 lines 50-68). Furthermore the simple addition of a voltage sensor to an existing prior art reference is not sufficient to patentably distinguish the claimed invention from a prior art reference.

In regard to claim 5, Bascobert in view of Scoccia teach all limitations of claim 1, however fails to teach the vehicle sensors are not disposed on the vehicle. It would have been an obvious matter of engineering design choice to not dispose the vehicle sensors on the vehicle as mere location of the vehicle sensors does not change the scope of the invention. For wherever the sensors are located they serve the same purpose of detecting and reading the temperature at said locations.

With regard to claims 10, 11, 15 and 16 Bascobert in view of Scoccia teach a vehicle air conditioning system capable of performing the method as claimed, see the rejection of claim 1 as claims cite similar subject matter.

In regard to claims 12 and 18, Bascobert in view of Scoccia teach a vehicle air conditioning system capable of performing the method of claim 10, however do not teach the first and fourth signals are sampled more frequently than the second and third signals. However it would have been obvious to one of ordinary skill in the art at the time the invention was made to sample the cooled air temperatures and compressor cycling signals more frequently, as it is well known that these values change more frequently than the ambient air temperature and humidity change when the vehicle is in operation because the compressor cycling and cooled air sensors are directly affected by internal vehicle conditions, and humidity and ambient temperature factors are directly affected by internal vehicle conditions external to the vehicle which don't change often. Thus more samples would be needed for a more accurate assessment of their measurements.

Regarding to claim 14, Bascobert in view of Scoccia teach a vehicle air conditioning system capable of performing the method of claim 10. They fail to teach the temperature is indicative of a cooled air temperature by a temperature sensor disposed near a vent aperture in the air handling subsystem.

In regard to claims 19 and 20, Bascobert in view of Scoccia teach a vehicle air conditioning system capable of performing the method of claim 19, see the rejection of claims 1 and 2 as claims cite similar subject matter.

Allowable Subject Matter

Claim 13 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gene L. Bankhead whose telephone number is (571)-272-8963. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on (571)-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CHERYL TYLER
SUPERVISORY PATENT EXAMINER
4/12/07

GB
Examiner
Art Unit 3744